

Abstract of the Disclosure

A centrifugal fluid pump apparatus includes a control mechanism including an emergency impeller rotation function. The emergency impeller rotation function includes a rotation termination function when the failure detection function detects a failure; impeller magnetic counterforce application function to apply a current to the electromagnet sufficient to overcome the magnetic attraction force of the rotor to the impeller caused by the magnet; hydrodynamic levitation control detection function to detect rotation of the impeller and the rotor by using a motor current monitored by the motor current monitoring function; motor speed control function for increasing the motor speed up to a predetermined value after the hydrodynamic levitation control detection function detects that the hydraulic bearing coupling between the impeller and the rotor has been made; and impeller magnetic counterforce termination function to terminate current to the electromagnet once the predetermined impeller rotation speed is reached.